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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,946	07/26/2001	Kohei Suzuki	10059-391US (P25827-01)	1491

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2005 MARKET STREET, SUITE 2200  
PHILADELPHIA, PA 19103-7013

EXAMINER

KALAFUT, STEPHEN J

ART UNIT	PAPER NUMBER
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1745

4

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/915,946

Applicant(s)

SUZUKI ET AL.

Examiner

Stephen J. Kalafut

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4) ☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-9 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.

4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other:

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Goto (US 6,444,351).

Goto discloses a cell including a negative electrode sheet comprising graphite, which is a carbon material, and a binder, thus forming a mixture (column 9, lines 16-29), which intercalates lithium (column 5, lines 34-42); a positive electrode sheet having an active material density of 3.6 g/ml, and comprising the lithium transition metal oxide  $\text{LiCoO}_2$  and polyvinylidene fluoride as a binder, which are both particulate, as indicated by the term "slurry" (column 8, lines 34-51); and a separator between the electrodes (column 4, lines 20-23), which contains a lithium salt (column 6, lines 16-20). As seen in figure 4, the cell may have an elliptic transverse-section.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto.

Goto does not specifically disclose the present length ratio of the two elliptic axes or the present range of the amount of binder relative to the amount of active material. However, since the shape of the cell would affect its compatibility with devices using current therefrom, and since the amounts of electrode components would have an effect on the capacity and mechanical stability of the electrode, the latter being important due to the stresses involved with rolling a set of flat components into a spiral, determining optimal values for this ratio and relative amounts would be within the skill of the ordinary artisan. These claims would thus be obvious over Goto.

Claims 4, 5, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto in view of Suzuki (US 5,595,841).

These claims differ from Goto by reciting that the positive electrode binder is an elastic copolymer having units of 2-ethylhexylacrylate, acrylic acid and acrylonitrile; or that the positive electrode also includes a conductive mixture of graphite and carbon black, in amounts relative to each other and to the active material; or an additional. Claim 9 also recites the present range of the amount of binder relative to the amount of active material, which range is considered obvious for reasons stated immediately above. Suzuki discloses the present copolymer (column 3, lines 28-30), in the form of a latex (column 3, lines 1-9), which would be elastomeric, in either or both electrodes (column 1, lines 45-48). Since this is the same polymer as presently claimed, the present spectroscopic characteristics would inherently accrue. In addition, a second polymer may used, some of which have ethylene units, and thus a polyethylene structure (column 3, line 64-column 4, line 13). The polymers disclosed by Suzuki provide "good cycle characteristics, a

high capacity, and improved first cycle efficiency and production fitness" (column 1, lines 35-48). For this reason, it would be obvious to use the polymers of Suzuki in either of the electrodes of Goto. Also, since Suzuki teaches his polymers to be in latex and thus elastomeric form, his polymers would be beneficial under the mechanical stresses of the spiral arrangement disclosed by Goto. Suzuki also discloses a conducting agent for the positive electrode comprising a combination of graphite and acetylene black, and gives guidelines for the amounts in which these additives are contained in the electrode (column 9, line 62 through column 10, line 18). In view of this teaching, it would be also obvious to use as a conductive agent for the positive electrode of Goto, the combination of graphite and acetylene black disclosed by Suzuki, and to optimize the relative amounts of the components of the resulting electrode.

The disclosure is objected to because of the following informalities: On page 16, the specification recites a "rectangular battery case", referring to figure 1, but there is nothing in this figure which appears rectangular. Appropriate correction is required.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takeuchi *et al.* (US 6458487) and Hallifax *et al.* (US 2002/0022175) disclose other spirally wound cells.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is (703) 308-0433. The examiner can normally be reached on M-F 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

sjk  
April 4, 2003



STEPHEN KALAFUT  
PRIMARY EXAMINER  
GROUP

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